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14 September 1961

MEMORANDUM FOR: TALENT Control Officers
(see distribution)

SUBJECT: Camera Information for Mission 9022, KH-3 Camera System

1. The following technical information necessary for the reduction of quantitative data obtained from photography of Mission 9022 is forwarded for your information.

a. This photography involves the use of three cameras: a main camera, a port horizon camera, and a starboard horizon camera.

b. Operational Focal Lengths

(1)	Main lens	610.611 mm
(2)	Port horizon lens	88.7 mm
(3)	Starboard horizon lens	88.7 mm

Definition: "Operational focal length" is defined as the distance from the main lens nodal point to the film surface as measured on the lens bench, and the data reduced for a vacuum condition. (Operational focal length is equivalent focal length corrected for environment.)

c. Lens Distortion

(1) Main lens (Pincushion). -- at 357° (+) .042 mm; at 357½° (+) .032 mm; at 358° (+) .006 mm; at 359° (+) .000 mm; at 0° (+) .000 mm; at 1° (+) .000 mm; at 2° (+) .016 mm; at 2½° (+) .032 mm; at 3° (+) .055 mm.

(2) Port horizon lens -- Radical distortion at 10° (+) .003 mm; at 20° (+) .031 mm. Tangential distortion (+) .008 mm.

(3) Starboard horizon lens -- Radical distortion at 10° (+) .049 mm; at 20° (+) .011 mm. Tangential distortion (+) .002 mm.

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d. Depression Angle of Horizon Cameras Relative to Nominal Main Camera

(1) Port Camera -- 15° 32' 40"
(2) Starboard Camera -- 14° 32' 29"

e. Image Motion Compensation

Ramp information pertinent to mission will be forwarded as soon as available.

f. Filter and Exposure Data

(1) Main lens -- Filter, wratten 21
Aperture, F/3.5
Exposure, 1/300 second (Nominal)
Slit width, 0.20 inches (Nominal)

(2) Horizon lens -- Filter, wratten 25A
Aperture, F/6.8
Exposure, 1/200 second

g. Resolution Capabilities

(1) Main lens -- 154 lines per mm, ave. (Measured on SO-132 film)
(2) Port horizon lens -- 42 lines per mm, ave. (Measured on Super XX film)
(3) Starboard horizon lens -- 38 lines per mm, ave. (Measured on Super XX film)

h. Timing Marks

Timing marks will not appear on Mission 9022.

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i. Film Data

Film used on Mission 9022 was SO-132.

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TALENT Control Officer,
National Photographic Interpretation Center

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TID/NPIC (14 Sep 61)

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